

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF TENNESSEE
NASHVILLE DIVISION

SIERRA CLUB
Plaintiff,

v.

No. 3:22-cv-01054

TENNESSEE VALLEY AUTHORITY,
Defendant.

**TENNESSEE VALLEY AUTHORITY'S OPENING BRIEF
IN SUPPORT OF ITS CROSS-MOTION FOR SUMMARY JUDGMENT**

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INTRODUCTION

The Court should uphold the Tennessee Valley Authority's ("TVA") decision to construct and operate 10 natural gas-fired aeroderivative combustion turbine ("Aero CT") units at TVA's existing Johnsonville Reservation in Humphreys County, Tennessee ("Johnsonville Reservation"). TVA made this decision following years of deliberation and analysis involving a collaborative multi-stakeholder process in which Plaintiff Sierra Club participated. The addition of the Aero CTs is part of a larger, programmatic plan developed in TVA's 2019 Integrated Resource Plan ("2019 IRP"), a comprehensive process-driven document that evaluates the merits of varying generation sources systemwide in conjunction with forecasted future energy demands. Supported by a detailed environmental impact statement ("EIS"), the 2019 IRP recommended that TVA invest in its peaking generation fleet to provide the system with the flexibility to enable the integration of significantly more renewable generation onto TVA's system. The 2019 IRP identified Aero CT units, like the ones proposed for Johnsonville, as being particularly well-suited to enhance TVA's system flexibility because they are highly efficient peaking units capable of operating intermittently during short-duration, high-demand periods. The Aero CT units would be essential components for integrating renewable resources, which TVA will also be adding to its generation mix as part of the 2019 IRP's implementation, while maintaining TVA's system reliability requirements. Specifically, Aero CTs can ramp up quickly to meet sudden changes in either demand or supply—providing critical generation when inherently intermittent renewable energy resources cannot.

TVA made its project-specific decision for the Johnsonville Aero CTs in full compliance with the National Environmental Policy Act ("NEPA"). TVA prepared a detailed environmental assessment ("EA") that took a "hard look" at the impacts, including climate-related impacts, of the proposed action; considered a reasonable range of alternatives; and determined that the proposed

project would not have a significant impact on the environment. NEPA requires nothing more. Because TVA satisfied its NEPA obligations, the Court should grant TVA’s cross-motion for summary judgment and deny Sierra Club’s cross-motion for summary judgment.

LEGAL AND FACTUAL BACKGROUND

I. Statutory and Regulatory Background

A. The TVA Act

TVA is a wholly owned executive branch corporate agency and instrumentality of the United States created by and existing pursuant to the TVA Act of 1933, 16 U.S.C. §§ 831 to 831ee (“TVA Act”); *Hill v. U.S. Dep’t of Lab.*, 65 F.3d 1331, 1333 (6th Cir. 1995). TVA is responsible for the development of the Tennessee Valley region’s resources and economy. *See* 16 U.S.C. §§ 831, 831d, 831dd. One of TVA’s “primary objectives” is to supply low-cost, reliable electricity “at rates as low as are feasible.” 16 U.S.C. §§ 831n-4(f), (h); 831m-1(b)(1). To achieve this objective, TVA builds, maintains, and operates the nation’s largest public power system, delivering electricity to 10 million people in TVA’s seven-state service area. AR Doc. 26 at 643.¹ TVA’s generating assets currently include five coal-fired plants, three nuclear plants, 29 hydroelectric plants, one pumped-storage hydroelectric plant, nine natural gas combustion turbine (“CT”) gas plants, eight natural gas combined cycle (“CC”) gas plants, one diesel generator site, and fourteen solar energy sites.² AR Doc. 26 at 643. In total, these assets constitute a portfolio of 33,500 megawatts. AR Doc. 26 at 643–44. TVA sells this electricity to local power companies,

¹ The Administrative Record (“AR”) of TVA’s decision was filed with this Court on August 4, 2023 (Doc. 46). Citations to “AR Doc. ___ at ___” refer to the numbered documents in the Administrative Record on file with the Court, and the page number citations refer to the AR page number, not the original page number of the document.

² At the time of the 2019 IRP, TVA operated six coal-fired plants but has since retired one plant and announced plans to retire others. AR Doc. 26 at 643; *see generally Our Power System: Coal*, TVA, available at <https://www.tva.com/energy/our-power-system/coal> (last visited Oct. 23, 2023).

which then distribute it to residential, commercial, industrial customers, and directly served customers. *Id.* at 643.

To provide reliable service at “lowest system cost” through “a least-cost planning program,” the agency is required by the TVA Act, as amended by the Energy Policy Act of 1992, to develop and implement a “planning and selection process for new energy resources which evaluates the full range of existing and incremental resources (including new power supplies, energy conservation and efficiency, and renewable energy resources).” 16 U.S.C. § 831m-1(a), (b)(1); *see also Ky. Coal Ass’n v. TVA*, 804 F.3d 799, 801 (6th Cir. 2015) (explaining the least-cost planning mandate). This process must consider, among other things, “necessary features for system operation, including diversity, reliability, dispatchability, and other factors of risk.” 16 U.S.C. § 831m-1(b)(2)(A).

B. National Environmental Policy Act

NEPA requires federal agencies to consider the reasonably foreseeable environmental effects of proposed “major Federal actions significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(C); *Monsanto Co. v. Geerston Seed Farms*, 561 U.S. 139, 145 (2010) (“The statutory text speaks solely in terms of *proposed* actions”) (cleaned up). This consideration serves NEPA’s dual purpose of informing agency decisionmakers of the potential environmental effects of proposed agency actions and ensuring that relevant information is made available to the public so that it “may also play a role in both the decisionmaking process and the implementation of that decision.” *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989). The statute sets forth broad environmental goals, but “its mandate . . . is essentially procedural.” *Vermont Yankee Nuclear Power Corp. v. Natural Res. Def. Council, Inc.*, 435 U.S. 519, 558 (1978); *accord Robertson*, 490 U.S. at 350 (“NEPA itself does not mandate particular results,” and “[i]f the adverse environmental effects of the proposed action are adequately

identified and evaluated, the agency is not constrained by NEPA from deciding that other values outweigh the environmental costs.”). NEPA focuses the attention of agencies and the public on a proposed agency action so that its reasonably foreseeable environmental effects may be studied before implementation but does not “mandat[e] that agencies achieve particular substantive environmental results.” *Marsh v. Or. Nat. Res. Council*, 490 U.S. 360, 371 (1989).

To assist in meeting these goals, NEPA “requires agencies to prepare an EIS for any major federal action that significantly affects the quality of the human environment.” *Citizens Against Pellissippi Parkway Extension, Inc. v. Mineta*, 375 F.3d 412, 414 (6th Cir. 2004) (citing 42 U.S.C. § 4332(C)). But not every major Federal action requires an EIS. If an agency conducts an EA and concludes that project impacts will not be significant, it may issue a Finding of No Significant Impact (“FONSI”) and forego the preparation of an EIS. 42 U.S.C. § 4336(b)(2); *Monsanto Co.*, 561 U.S. at 145; *Pellissippi Parkway*, 375 F.3d at 414 (“After analyzing the EA, the agency decides whether to prepare an EIS or issue a finding of no significant impact.”). Agencies have “considerable discretion” in determining whether an EA should lead to the preparation of an EIS. *Ky. Coal Ass’n*, 804 F.3d at 804. And EAs may be “tiered” from broader EISs in order to “eliminate repetitive discussions . . . , focus on the actual issues ripe for decision, and exclude from consideration issues already decided or not yet ripe at each level of environmental review.” 40 C.F.R. § 1501.11.³

³ “Tiering” is a process that allows an agency to go from a broader NEPA review to a more site-specific NEPA review without readdressing issues or repeating information and analyses in the broader review. 40 C.F.R. § 1501.11. TVA’s use of tiering complies with the requirements of NEPA. *See, e.g., Ky. Coal Ass’n*, 804 F.3d at 805 (“The regulations not only allow such tiering; they encourage it and indeed in some cases require it TVA did not act arbitrarily by following its past practice and tiering its assessment.”).

II. Statement of Facts

A. The 2019 IRP

To achieve TVA's core statutory objectives, TVA periodically develops a programmatic IRP that serves as a long-range, least-cost planning tool that "shapes" how TVA achieves its missions of "provid[ing] low-cost, reliable and clean electricity; support[ing] environmental stewardship; and foster[ing] economic development in the Tennessee Valley." AR Doc. 26 at 618. The NEPA analyses for specific energy resource decisions can tier from the programmatic EIS for the IRP.

The 2019 IRP accelerated TVA's transition from fossil fuel generation and the expansion of renewable energy resources. The 2019 IRP and EIS were developed with significant input from stakeholders and the public, through the 2019 IRP Working Group, and the NEPA notice-and-comment process. The 2019 IRP Working Group consisted of 20 individuals representing 20 external stakeholder organizations who reviewed input assumptions and preliminary results and provided feedback throughout the drafting process for the IRP and EIS. AR Doc. 26 at 658. In addition to submitting comments on the 2019 IRP and EIS, Sierra Club participated as a member of the IRP Working Group. *Id.* at 653, 658; AR Doc. 27 at 1229.

The 2019 IRP evaluated the merits of various generation sources against projections of future energy demands and considered several broad strategy alternatives within the least-cost planning framework. AR Doc. 26 at 621–24; *see also Ky. Coal Ass'n*, 804 F.3d at 802 (explaining TVA's IRP process). Both the IRP and its associated EIS determined that exclusive reliance on just one strategy (e.g., building only renewables) would have adverse impacts on system flexibility and reliability and would be extremely costly—contrary to TVA's statutory directive. AR Doc. 26 at 618–19; AR Doc. 2 at 291–92. For example, the intermittent nature of solar and wind generation would severely constrain TVA's ability to provide reliable and resilient power year-round. Further,

solar generation alone would not generate sufficient energy to meet winter peak demand, which often coincides with the early morning and late evening hours when the sun is down. AR Doc. 26 at 783 (stating that “TVA’s winter peaks normally occur around 7:00a.m. CST when solar is not available”); AR Doc. 2 at 171 (noting also that “cloud patterns that temporarily block the sun and reduce solar generation require other generating units to respond in order to continue to reliably supply power to customers”); *Id.* at 177; AR Doc. 27 at 1306 (solar does not contribute to winter peak). The IRP likewise concluded that wind alone would be an unreliable source of power because “[g]eneration from wind is weather and location dependent and not dispatchable like more conventional resources.” AR Doc. 26 at 780; *id.* at 746 (stating that “in-Valley” wind “has lower intensity and efficiency, driving lower capacity factors and higher effective costs”); *id.* at 819 (explaining that “[t]he intermittency of solar and wind generation presents some operational challenges, such as requiring other generating units to provide additional load following and cycling to absorb sub-hourly fluctuations”); *see also id.* at 746 (recognizing that battery storage is not currently feasible). Reliance on these sources alone would therefore risk system failure and cause TVA to violate its statutory duty to maintain a reliable, low-cost power supply. AR Doc. 26 at 753–54; AR Doc. 2 at 291–92.

TVA ultimately selected a Target Power Supply Mix (“Target Mix”) as its preferred strategy because it would provide a diverse energy portfolio and the flexibility to make energy resource decisions consistent with its least-cost planning obligations over the next 20 years. 84 Fed. Reg. 48987, 48988 (Sept. 17, 2019). As part of the Target Mix, TVA identified its gas fleet, including CTs, as playing a critical role in meeting peak power demand, providing the flexibility needed to integrate renewable energy systemwide, executing its system-level carbon reduction plans, and maintaining a reliable power supply for the TVA service area. AR Doc. 26 at 621, 671 (identifying Aero CT units as integral peaking resources due to their high cycling capacity and

very fast startup); *id.* at 741–42, 753; *see also* AR Doc. 2 at 177, 294 (explaining that “the combination of renewable energy and storage cannot provide the same magnitude of reliable and cost-effective energy year-round as is possible with CTs in combination with renewables”). As the amount of renewables continues to increase in TVA’s portfolio, flexibility of the remainder of the fleet (i.e., generation assets that can rapidly change their output) is critical. AR Doc. 26 at 648, 741–42; *see also* AR Doc. 2 at 170. The Target Mix thus calls for the systemwide addition, by 2038, of up to 500 megawatts of demand response and 2,200 megawatts of energy efficiency (demand-side options); 4,200 megawatts of wind; 5,300 megawatts of storage; 8,600 megawatts of CTs; 9,800 megawatts of CCs; and 14,000 megawatts of solar. AR Doc. 26 at 754–56. Based on this resource mix, TVA is executing a plan to achieve a 70% reduction in emissions by 2030, sees a path to 80% carbon reduction by 2035, and aspires to achieve net-zero carbon emissions by 2050. AR Doc. 2 at 169; AR Doc. 31 at 1402–03.

B. Operations at Johnsonville

TVA’s Johnsonville Reservation is a 720-acre site adjacent to the Tennessee River in Humphreys County, Tennessee. AR Doc. 2 at 173; AR Doc. 33 at 1473. The Johnsonville Reservation lies within a highly industrialized area. AR Doc. 2 at 189. Several manufacturing plants border it, including caustic soda producer Occidental Chemicals (“OxyChem”), a sand and gravel mining facility along the southwest border, and Chemours, one of the world’s largest producers of titanium dioxide. *Id.* at 189, 244–45; (*see also* Doc. 28 at PageID##136–37 (depicting the adjacent location of the Chemours and OxyChem facilities to the Johnsonville Reservation).) The surrounding area also experiences heavy rail and vehicular traffic. AR Doc. 2 at 245.

The Johnsonville Reservation originally housed a fossil plant, which began commercial operation in 1951 with its first coal-fired electric generating unit. *See* AR Doc. 33 at 1486, 1835. By 1959, TVA had 10 coal-fired electric generating units operating at the site, with a total capacity

of approximately 1,250 megawatts. *See* AR Doc. 35 at 2182. TVA retired these coal-fired units in 2017. AR Doc. 2 at 172, 189. TVA thereafter continued to operate 20 simple-cycle CT units at Johnsonville, most of which date from the 1970s.⁴ *See* AR Doc. 34 at 2073. These simple-cycle CT units are peaking units, and all run on natural gas, making them lower emitters of conventional air pollutants and greenhouse gases (“GHGs”), and thus cleaner than coal-burning units.

C. The Aero CT Project

At issue here is TVA’s proposed project to construct and build 10 natural gas-fired Aero CT units at TVA’s Johnsonville Reservation, which builds on or “tiers” from the 2019 IRP and EIS. AR Doc. 2 at 169. The 2019 IRP recommended that TVA evaluate the engineering end-of-life dates for its aging fossil units to inform long-term planning. AR Doc. 26 at 622. TVA subsequently completed a CT Modernization Study (“CT Study”) based on this recommendation. AR Doc. 2 at 170.⁵ The 2019 CT Study recommended retiring and replacing the oldest Johnsonville CT units and building 500 to 600 megawatts of highly efficient new Aero CT units in the near term to enhance system flexibility and integrate renewable energy capacity from various resources, such as solar and wind; and provide dispatch capacity, i.e., the ability to adjust power output on demand. *Id.* at 170–71; AR Doc. 30 at 1384–85, 1387, 1389.

In January 2022, based on the 2019 IRP and subsequent CT Study, TVA proposed to construct and operate 10 Aero CT units at its Johnsonville Reservation. AR Doc. 1 at 13. The Aero

⁴ Aero CTs are different from simple-cycle CTs because they provide high cycling capability and very fast start up. AR Doc. 2 at 170.

⁵ As the Sixth Circuit has noted, although TVA’s IRP “creates broad ‘strategy alternatives’ and provides ‘guideline ranges for key components’ of . . . TVA’s entire power system,” it “‘does not dictate a specific series of actions’ or ‘[f]inalize specific asset decisions,’” and instead gives “TVA freedom to ‘fine-tun[e]’ system-wide processes to develop specific policy choices at specific locations.” *Ky. Coal Ass’n*, 804 F.3d at 803. The CT Study reflects the sort of “fine-tuning” TVA believes necessary to upgrade its fleet in order to provide least-cost, reliable, and resilient power to its customers.

CT units are scheduled to enter commercial operation by December 31, 2024, after which TVA expects that they will operate on an as-needed basis to meet peak system needs and will facilitate the integration of additional renewable generation. AR Doc. 2 at 171. Renewable energy (e.g., solar, wind) and storage options (like batteries) do not, and cannot, provide the same magnitude of reliable and cost-effective energy year-round made possible by the combination of CTs and renewables. *Id.* at 295–96; *see also infra* at 23–27. The design of the Aero CTs allows them to ramp up and down very quickly to meet sudden changes in demand when renewable sources like wind and solar are not available. AR Doc. 2 at 170–71. The proposed Aero CTs, which TVA expects to operate only intermittently, *id.* at 196, 203–04, would enhance the reliability of TVA’s peaking fleet and promote system flexibility to integrate renewable resources. *Id.* at 170.

The 10 Aero CT units are being constructed next to the 16 existing CTs that TVA plans to decommission. *Id.* at 171. The Aero CT project area consists of approximately 245 acres within the 720-acre Johnsonville Reservation. *Id.* at 178. The facilities would include plant equipment and systems, such as natural gas metering and handling systems; instrumentation and control systems; transformers; and ancillary buildings. *Id.* at 178–79. At full buildout, the Aero CT plant will occupy only 15 acres on the 720-acre site and would use the existing on-site natural gas infrastructure to support the proposed Aero CTs. *Id.*

D. Environmental Assessment and Finding of No Significant Impact

TVA prepared an EA to analyze the potential impacts from the construction and operation of the proposed Aero CT project.⁶ AR Doc. 2. The EA, spanning over 100 pages, is the product of

⁶ The EA was prepared consistent with the 2019 IRP recommendations and the 2020 Council on Environmental Quality’s (“CEQ”) regulations for NEPA at 40 C.F.R. §§ 1500–1508. CEQ initially promulgated regulations implementing NEPA in 1978, 43 Fed. Reg. 55978 (Nov. 29, 1978), and amended those regulations in 1986, *see* 51 Fed. Reg. 15618-01 (Apr. 25, 1986). In 2020, CEQ substantially revised the regulations. *See* 85 Fed. Reg. 43304 (July 16, 2020). The 2020

diligent study and analysis by TVA’s team of 18 technical and scientific experts (in-house and consultants) of potential impacts from the proposed project on numerous resources, including air quality, climate change, geology, wildlife, wetlands, socioeconomics, and environmental justice. *Id.* at 187–263, 271–73 (list of NEPA preparers). It also reflects TVA’s careful review and deliberate consideration of comments received from the general public, organizations including Sierra Club, and state and federal agencies over a 30-day period. *Id.* at 174, 285–423.⁷

The EA considered two alternatives—a no action alternative (Alternative A) and an alternative to construct and operate 10 natural gas-fired Aero CTs at the Johnsonville Reservation (Alternative B). *Id.* at 177 (summarizing alternatives and their effects). TVA found that Alternative B best met the project’s purpose and need to enhance system flexibility, integrate increasing renewable capacity, and provide dispatchable capacity, as well as comporting with the CT Study recommendations. *Id.* TVA determined that the construction and operation of the Aero CTs would have temporary, minor, or no impact on the studied resources. *Id.* at 183–84.

The EA found that the Johnsonville Reservation was particularly well suited for the addition of the 10 Aero CT units—the Reservation currently houses 20 simple-cycle CT units and has the existing natural gas infrastructure on-site to support the additional Aero CT units. *Id.* at

regulations became effective on September 14, 2020, *id.*, and therefore were in effect during TVA’s decisionmaking process for the Aero CT project. CEQ amended the regulations again in early 2022 to restore a few discrete provisions of the 1978 regulations, including clarifying that “effects” under NEPA include direct, indirect, and cumulative impacts. *See* 87 Fed. Reg. 23453 (Apr. 20, 2022). Those amendments became effective on May 20, 2022, *id.*, shortly before TVA issued its final EA in July 2022. TVA’s 2020 NEPA regulations at 18 C.F.R. § 1318 comport with CEQ’s 2022 amendments by considering direct, indirect, and cumulative impacts. 40 C.F.R. § 1508.1(g). Unless otherwise noted, TVA cites the current version of CEQ’s regulations.

⁷ Although NEPA does not require public comment on draft EAs, TVA nevertheless offered a 30-day comment period. *See Fund For Animals, Inc. v. Rice*, 85 F.3d 535, 549 (11th Cir. 1996) (stating that “there is no legal requirement that an [EA] be circulated publicly”).

171, 178.⁸ Throughout the operational history of the Johnsonville Reservation, extensive environmental reviews have been conducted, which provide a level of confidence that there is a low potential for impacting sensitive environmental resources. *Id.* at 178. Furthermore, all construction activities on the project’s 15-acre footprint would primarily take place on previously disturbed land located within the boundaries of the Johnsonville Reservation, and TVA does not anticipate any changes to the current land use. *Id.* at 173, 178–79. Moreover, the proximity of the Johnsonville Reservation to load centers in Nashville and Middle Tennessee make this site attractive for Aero CTs because of the important grid support and stability they provide. *Id.* at 178.

The proposed project would continue a long-term downward trend in emissions from the Johnsonville Reservation. Emissions of sulfur dioxide (“SO₂”) and oxides of nitrogen (“NO_x”)—precursors to the formation of fine particulates and ozone—are a small fraction of what they once were.⁹ (Doc. 29 at PageID##140–41.) Following the Aero CT project, TVA will have replaced 16 larger, higher-emitting frame CTs with 10 smaller, lower-emitting Aero CTs. *See* AR Doc. 62, Tenn. Air Pollution Control Bd., Permit to Construct/Modify Air Contaminant Source(s), Permit No. 572833 at 5878 (Nov. 26, 2018); AR Doc. 85, PSD Permit Application, Volume I – Construction Permit Application, Simple-Cycle Combustion Turbines Installation at 6736 (Sept. 2021) (“PSD Permit Application”); Tenn. Air Pollution Control Bd., Permit to Construct/Modify Air Contaminant Source(s), Permit No. 979348 at 10, 12 (Aug. 31, 2022) (“PSD Permit” or “New

⁸ As recommended by the CT Study, Johnsonville Units 1-16 will be retired and decommissioned, and their combined generation is being replaced by TVA’s Paradise and Colbert CT facilities. AR Doc. 30 at 1389; AR Doc. 2 at 190. TVA assessed the environmental impacts of this project in an earlier NEPA review completed in June 2021 and incorporated it by reference into the Johnsonville EA. AR Doc. 2 at 171; *see also* AR Doc. 38.

⁹ Ozone precursors are created by chemical reactions of NO_x and volatile organic compounds in the presence of sunlight and heat.

Construction Permit”).¹⁰ Johnsonville will no longer be classified as a major source of hazardous air pollutants (“HAPs”) following the project’s completion.¹¹ (Doc. 29 at PageID##144–45; 185–86); *see also* 42 U.S.C. § 7412(a)(1) (defining “major source” of HAPs). And emissions of carbon monoxide (“CO”) and NO_x would be minimized through the use of state-of-the-art air pollution controls: Selective Catalytic Reduction units for NO_x and an Oxidation Catalyst system for CO. AR Doc. 2 at 180, 196–97. SO₂ and CO₂ emissions would be minimized through use of pipeline quality natural gas and the installation of state-of-the-art, high efficiency CT units. *Id.* at 198. The installation of the new Aero CT units will not lead to exceedances or violations of applicable National Ambient Air Quality Standards—the air quality standards established by the United States Environmental Protection Agency for the ambient air to protect public health and welfare. AR Doc. 2 at 183, 191–98. On that basis, the Tennessee Department of Environment and Conservation (“TDEC”) issued TVA a Prevention of Significant Deterioration (“PSD”) permit under the Clean Air Act for the new units on August 31, 2022.¹² The Johnsonville Aero CTs, which would be part of TVA’s peaking generation fleet, would operate only as-needed, to ensure reliability at times of peak demand. AR Doc. 196, 203–04. Further, the efficiency gains that TVA’s simple cycle fleet will achieve with the addition of the new, highly efficient, state-of-the-art Johnsonville Aero CTs will result in an overall decrease in GHG emissions systemwide. AR Doc.

¹⁰ Copies of the PSD permit and the Final Determination by the Tennessee Department of Environment and Conservation (“TDEC”) are filed on TDEC’s public website. *See TDEC Data and Map Viewers*, TDEC, *available at* <https://www.tn.gov/environment/about-tdec/tdec-dataviewers.html> (last visited Oct. 23, 2023). Relevant portions of each are attached to the Tritapoe Declaration. (Doc. 29 at PageID##152–206.)

¹¹ HAPs are those air pollutants listed in 42 U.S.C. § 7412(b) that are known or suspected to cause adverse health effects in humans and the environment. *See* 42 U.S.C. § 7412(a)(6).

¹² Sierra Club misreads the PSD Permit in alleging that emissions from Johnsonville will increase as a result of the project. (Doc. 1 at PageID#21.) The permit does not attempt to calculate the net change because it does not factor in the emissions reductions from the shutdown of the 16 CT units to be retired. (Doc. 29 at PageID##145–46.)

2 at 203–04. The Aero CT project, by enabling system wide GHG reduction, would therefore result in a net reduction of GHG emissions at the regional and nationwide level. *Id.* at 203–05.

Accordingly, TVA identified the Aero CT alternative as its preferred alternative. *Id.* at 185. Compared to the no-action alternative, TVA concluded that the preferred alternative would have minimal environmental effects and would meet the purpose and need of the project by promoting a more flexible, diversified, and reliable portfolio of energy resources on the TVA system, consistent with the 2019 IRP. *Id.* at 183–85. TVA determined that the proposed action would not significantly impact the environment and issued a FONSI on July 12, 2022. AR Doc. 3 at 474. TVA’s President and CEO approved the project on August 16, 2022. (Doc. 27-2 at PageID#121.)

STANDARD OF REVIEW

A federal court must determine that subject matter jurisdiction exists before making any decision on the merits. *Gross v. Hougland*, 712 F.2d 1034, 1036–37 (6th Cir. 1983). Here, because Sierra Club lacks standing, “the court lacks subject matter jurisdiction.” *State by & through Tenn. Gen. Assembly v. U.S. Dep’t of State*, 931 F.3d 499, 507 (6th Cir. 2019). TVA’s Rule 12(b)(1) motion is currently pending before the Court (Doc. 26), and “is the proper vehicle for considering whether subject matter jurisdiction exists in a particular case”, *Ogle v. Church of God*, 153 F. App’x 371, 374–76 (6th Cir. 2005) (citing *Ohio Nat’l Life Ins. Co. v. United States*, 922 F.2d 320, 325 (6th Cir. 1990)).

As to the merits of this action, because NEPA does not grant a private right of action, judicial review takes place only pursuant to the Administrative Procedure Act (“APA”). *See* 5 U.S.C. §§ 701–706; *see also Friends of Tims Ford v. TVA*, 585 F.3d 955, 964 (6th Cir. 2009). Pursuant to the APA, summary judgment is the procedural “mechanism for deciding, as a matter of law, whether the agency action is supported by the administrative record or otherwise consistent with the APA standard of review.” *Tenn. Hosp. Ass’n v. Price*, No. 3:16-cv-3263, 2017 WL

2703540, at *4 (M.D. Tenn. June 21, 2017). But typical summary judgment rules do not apply in APA cases because of the district court’s limited role in reviewing the administrative record. *Id.* at *5. “[T]he district judge sits as an appellate tribunal,” and “the ‘entire case’ on review is a question of law.” *Am. Bioscience, Inc. v. Thompson*, 269 F.3d 1077, 1083 (D.C. Cir. 2001); *accord Chamber of Com. of U.S. v. SEC*, No. 3:22-cv-561, ___ F.Supp.3d ___, 2023 WL 3063819, at *8 (M.D. Tenn. Apr. 24, 2023).

The APA allows courts to overturn agency decisions only if they are “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” 5 U.S.C. § 706(2)(A); *cf. Lowman v. Fed. Aviation Admin.*, No. 21-014476, ___ F.4d ___, 2023 WL 6632725, at *15 (11th Cir. Oct. 12, 2023) (declining to vacate agency decision based on mere policy disagreements). Thus, the standard of review is narrow and “highly deferential” to the agency. *Northwoods Wilderness Recovery, Inc. v U.S. Dept. of Agric., Forest Serv.*, 192 F. App’x 369, 374 (6th Cir. 2006); *see also Klein v. U.S. Dep’t of Energy*, 753 F.3d 576, 581 (6th Cir. 2014). Courts simply ask “whether the agency adequately studied the issue and took a hard look at the environmental consequences of its decision, not whether the agency correctly assessed the proposal’s environmental impacts.” *Klein*, 753 F.3d at 581 (cleaned up). Judicial review of agency action under the APA should be “‘based on the record the agency presents to the reviewing court.’” *Little Traverse Lake Prop. Owners Ass’n v. Nat’l Park Serv.*, 883 F.3d 644, 657 (6th Cir. 2018) (quoting *Fla. Power & Light Co. v. Lorion*, 470 U.S. 729, 744 (1985)).

ARGUMENT

For the reasons set forth in support of TVA’s pending motion to dismiss, which TVA incorporates by reference here (Docs. 26–29, 39–41, 43), this Court lacks subject matter jurisdiction to hear Sierra Club’s claims. Sierra Club has failed to satisfy the “irreducible constitutional minimum of standing” because it has not met its heightened burden at the summary

judgment stage to establish a concrete and particularized injury caused by TVA. (TVA Br. in Supp. of Mot. Dismiss, Doc. 27 at Page ID##93–130); *see also Lujan v. Defenders of Wildlife*, 504 U.S. 555, 567 (1992) (stating that the burden to establish standing increases at the summary judgment stage and requires “a factual showing of perceptible harm”). Consequently, this Court “cannot proceed at all [in Sierra Club’s] cause” on the merits. *See State by & through Tenn. General Assembly*, 931 F.3d at 507 (citing *Steel Co. v. Citizens for a Better Env’t*, 523 U.S. 83, 94 (1998)).

But even if Sierra Club could establish standing, its claims would still fail on the merits. Thus, if the Court does not grant TVA’s motion to dismiss, then it should grant TVA’s Cross-Motion for Summary Judgment because TVA’s EA and FONSI for the Aero CT project at the Johnsonville Reservation comply with NEPA. TVA’s EA for the construction and operation of the 10 Aero CTs at the Johnsonville Reservation appropriately evaluates the impacts of the project. Based on the findings in the EA that the project will not result in significant impacts, TVA appropriately issued a FONSI. The analyses in the EA demonstrate that TVA took a “hard look” at all potential environmental impacts of the project, including potential climate change impacts of the Aero CTs, considered a reasonable range of alternatives that could satisfy TVA’s purpose and need, and reasonably determined that an EIS was not required.

I. TVA Took a “Hard Look” at the Reasonably Foreseeable Impacts of the Project on Climate.

The EA provided an extensive and robust analysis of the potential impacts of GHG emissions from the Aero CT project on climate change. TVA has one of the cleanest energy-generating systems in the entire nation, achieving a 57 percent reduction in its mass carbon emissions as compared to 2005 baseline standards. *See* AR Doc. 2 at 200–01. This reduction is largely due to TVA’s ongoing replacement of its coal fleet with other generating sources, including cleaner energy sources. *Id.* at 201. The Johnsonville Aero CT project is one of TVA’s latest

investments to further reduce TVA's reliance on coal and to add energy resources that ensure the provision of safe, reliable, and cleaner energy. *Id.* at 200–01. Indeed, the EA affirms that the proposed project would continue the decrease of GHG emissions system wide. *Supra* at 9–13. TVA thoroughly analyzed the potential impacts of the proposed project, including qualitative and quantitative assessments of climate impacts, evaluating the potential social cost of GHG emissions from the project, and explaining the cumulative climate impacts of the project. Based on this analysis, TVA reasonably concluded that GHG emissions from the proposed project would not have a significant impact on climate.

A. TVA's qualitative and quantitative analyses of climate impacts was reasonable.

The EA's qualitative discussions of GHG emissions and the possible environmental impacts of those emissions, buttressed by its quantitative analysis, complied with NEPA. *See Nat'l Audubon Soc'y v. U.S. Army Corps of Eng'rs*, 991 F.3d 577, 585–86 (4th Cir. 2021) (recognizing that an agency's choice to use qualitative methods over quantitative ones is within the agency's discretion so long as it “explains its reasons for doing so”). TVA's analysis in the EA begins with an unequivocal acknowledgment of the anthropogenic causes of global climate change, particularly the release of GHG emissions from the combustion of fossil fuels. *See* AR Doc. 2 at 198–99. It also examined recent reports from the Intergovernmental Panel on Climate Change and the U.S. Global Change Research Program's Climate Science Special Report: Fourth National Climate Assessment, discussing climate impacts to the atmosphere, ocean, cryosphere, and biosphere. *Id.* at 199; *see also* AR Docs. 104, 105.

Against this backdrop, the EA summarized the current local and regional climate and discussed how these areas might be affected by climate change. *See* AR Doc. 2 at 199–200 (discussing the long-term impacts of climate change on the Southeast U.S. under various emissions

scenarios). Cognizant that climate impacts are expected to increase from various sources throughout the region, nationally, and globally, TVA has been decreasing its carbon footprint by retiring its coal generation facilities and adding cleaner energy alternatives to its generation portfolio. *See id.* at 200–02. The EA explained that there has been a systemwide downward trend in emissions since 1995 that will continue through the ongoing implementation of the 2019 IRP Recommendations and the TVA Strategic Intent and Guiding Principles. *Id.* The proposed project would enable TVA to integrate more renewables into the system (thereby lowering system GHG emissions) while maintaining system reliability and providing the capacity necessary to meet demand when the intermittent generation from renewables cannot. The proposed Aero CTs are therefore expected to operate only infrequently—during short-duration, high-demand periods. *See id.* at 202.

The administrative record demonstrates the sufficiency of TVA’s quantitative analysis of impacts from GHG emissions. TVA provided a detailed quantitative analysis of the impacts of GHG emissions from each alternative. Under the No-Action Alternative, there would be no short-term, temporary construction-related GHG emissions or operational changes in GHG emissions. *See AR Doc. 2* at 202. Construction of the proposed project (Alternative B) would generate short-term, temporary GHG emissions from the combustion of gasoline and diesel fuels by internal combustion engines (e.g., vehicles, generators, construction equipment). *Id.* And any associated loss of carbon sequestration from related tree-clearing would be less than significant. *See id.* at 203 (explaining that, of the 172,658 metric tons of carbon per year sequestered by forested lands in Humphreys County, the loss from tree-clearing for the project would be only 0.86 metric tons).

TVA applied two complementary methodologies to quantify the impacts from the operational GHG emissions from the proposed project. *First*, TVA conducted a proxy analysis, which shows that, on the whole, total GHG emissions from the project would be minor when

compared to total statewide, regional, national, and global emissions. *See id.* at 204. Contrary to Sierra Club’s suggestion (Doc. 1 at PageID#21), courts have acknowledged the inability of current climate science to directly connect GHG emissions from specific agency actions to global climate impacts and have approved the use of GHG emissions as “a reasonable proxy for assessing potential climate change impacts[.]” *WildEarth Guardians v. Jewell*, 738 F.3d 298, 309 (D.C. Cir. 2013); *Barnes v. Dep’t of Transp.*, 655 F.3d 1124, 1140 (9th Cir. 2011) (holding that disclosure of the proposed project’s GHG emissions as a percentage of total global emissions was adequate for purposes of NEPA and recognizing that project emissions, a small fraction of global GHG emissions, do not “translate into locally-quantifiable environmental impacts given the global nature of climate change”); *see also WildEarth Guardians v. Zinke*, No. 17-cv-00080-SPW, 2019 WL 2404860 at *10 (D. Mont. Feb. 11, 2019) (approving use of proxy method); *W. Org. of Res. Councils v. Bureau of Land Mgmt.*, No. 16-21-GF-BMM, 2018 WL 1475470, at *14 (D. Mont. Mar. 26, 2018) (same).

Here, the EA provided relevant benchmarks against which to compare the project’s potential emissions, including national and global emissions, *see* AR Doc. 2 at 204, and appropriately considered “the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.” 40 C.F.R. § 1508.7 (2019); *see also WildEarth Guardians v. Jewell*, 738 F.3d at 309. TVA acknowledged that the Aero CTs could potentially emit up to 1,141,195 tons of CO₂e per year but expects this figure to be much less. *Id.* at 203.¹³ TVA anticipates the operating hours of the units to be less than that allowed under the regulations

¹³ CO₂e emissions are a calculation of the sum of the six individual GHGs, including CO₂, CH₄, N₂O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride with applicable global warming potentials applied pursuant to 40 C.F.R. Part 98.

governing the control of GHG emissions from CT units.¹⁴ See AR Doc. 2 at 196. Instead, TVA plans to operate the Aero CTs only as peaking units, i.e., intermittently during short-duration, high-demand periods. Based on TVA's experience with other simple-cycle plants in its peaking generation fleet, there is a reasonable likelihood that the proposed project will operate less than the 3,400 hours allowed under the regulations and, therefore, emit less GHG emissions than the EA evaluated. AR Doc. 2 at 203.

In any event, any emphasis by Sierra Club on GHG emissions from the proposed project impacting any particular area is misplaced. "Greenhouse gases are unique . . . in that they are both well-mixed and long-lived in the atmosphere, so that concentrations of [GHGs] at a given time *are determined by emissions of all sources* worldwide over centuries, *rather than by emissions from local, contemporaneous sources.*" See *Sierra Club v. U.S. Def. Energy Support Ctr.*, No. 01:11-cv-41, 2011 WL 3321296, at *4 (E.D. Va. July 29, 2011) (emphasis added) ("A reduction of greenhouse gas emissions in one area or from one source has no effect on greenhouse gas levels that are specific to that area, and may even have no effect on global greenhouse gas levels . . ."). *Id.* Because GHG emissions from the proposed project would mix in the atmosphere with other emissions sources, TVA cannot delineate any specific local environmental impacts from the project's incremental GHG emissions. And Sierra Club can offer no evidence to the contrary. The only relevant measure of GHG impacts from the proposed project therefore is its contribution to system-wide GHG reduction. As the EA explained, the operation of the Aero CT units would "enabl[e] an overall increase in the delivery of clean/renewable energy generation which contributes to an overall decrease in regional and national GHG emissions." AR Doc. 2 at 204; see also AR Doc. 26 at 742, 753.

¹⁴ 40 C.F.R. § 60, Subpart TTTT applies to combustion turbine electrical generating units constructed after January 8, 2014, for the control of GHG emissions. See AR Doc. 2 at 195.

Second, TVA applied the social cost of carbon (“SCC”) methodology, a mode of analysis that also comports with NEPA. The SCC is one method among many that attempts to quantify or monetize the economic benefits and costs of GHG emissions from proposed projects. The SCC tool, which was developed to assist agencies in regulatory rulemaking, does not measure the actual incremental impacts of an individual project or include all potentially significant impacts. AR Doc. 2 at 204. Importantly, the SCC metric does not account for the fact that the Aero CT units would support TVA’s system-wide addition of renewables consistent with the 2019 IRP and TVA’s Strategic Intent and Guiding Principles. *Id.* at 205. There are also no established criteria identifying the monetized values that are considered significant for NEPA purposes. *Id.* at 204–05; *see also Louisiana v. Biden*, 585 F.Supp.3d 840 (W.D. La. 2022); *State v. Biden*, No. 21-3013, 2022 WL 12230261 (8th Cir. Oct. 21, 2022). Indeed, NEPA’s implementing regulations do not mandate a cost-benefit analysis, 40 C.F.R. § 1502.22, and CEQ has yet to establish a significance threshold for GHG emissions.

Although NEPA does not require TVA to apply the SCC, TVA nevertheless conducted an SCC analysis using two different valuations. AR Doc. 2 at 205.¹⁵ The first valuation used an interim SCC value of \$51 per metric ton of CO₂ from the Biden Administration’s *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates* under Executive Order 13990 and applied a three percent discount rate recommended by the Inter-agency Working Group on the Social Cost of Greenhouse Gases (“IWG”) to account for the potential costs

¹⁵ To the extent Sierra Club argues that CEQ’s 2023 Interim Guidance on Greenhouse Gas Emissions and Climate Change, 88 Fed. Reg. 1196 (Jan. 9, 2023), requires agencies to apply the SCC methodology, the Court should reject the argument. The guidance does not have the force and effect of law or otherwise create any legal claims or obligations. *Id.* Nevertheless, the EA applies the SCC analysis consistent with the Interim Guidance.

from the No-Action Alternative and Alternative B. *See* AR Doc. 2 at 207 (Table 3-3).¹⁶ The second valuation used SCC values from the Trump Administration’s *EPA Regulatory Impact Analysis for the Repeal of the Clean Power Plan, and the Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units*, 84 Fed. Reg. 32520 (July 8, 2019), and applied a seven percent discount. *See* AR Doc. 2 at 208.

Insofar as Sierra Club complains of TVA’s application of a seven percent discount rate in the second valuation and decision not to apply a 2.5 percent rate, its claim is meritless. (*See* Doc. 1 at PageID#22.) It is not the role of the Court to choose between differing methodologies, and courts generally defer to the technical and scientific expertise of an agency as long as there is a reasoned basis for the agency’s decision. *See, e.g., Marsh v. Or. Nat. Res. Council*, 490 U.S. at 377; *Druid Hills Civic Ass’n v. Fed. Highway Admin.*, 772 F.2d 700, 711 (11th Cir. 1985); *Nat. Res. Def. Council v. Herrington*, 768 F.2d 1355, 1385 (D.C. Cir. 1985) (holding that the court “will defer to an agency’s judgment to use a particular model if the agency examines the relevant data and articulates a reasoned basis for its decision”). Here, TVA applied one of the four discount rates proposed by the IWG and endorsed by the Biden Administration—three percent—in conducting at least one of its valuations. And Sierra Club cannot identify any requirement that TVA is required to apply one discount rate over another. *See* AR Doc. 2 at 204 (noting the lack of consensus on the appropriate discount rate). As TVA explained, it applied the seven percent discount rate developed by EPA during the Trump Administration for comparative purposes,

¹⁶ The IWG is responsible for recommending the estimate that agencies use when monetizing the value of changes in GHG emissions, including setting the SCC, social cost of nitrous oxide, and social cost of methane. *See* Exec. Order No. 13,990, 86 Fed. Reg. 7037, 7040 (Jan. 20, 2021). Discount rates are used to determine how much future costs and benefits are worth in the present day.

showing the significant variation in outputs and the challenge in using the “SCC metric to provide meaningful results at an absolute level.” *Id.* at 204–05.

In sum, TVA’s qualitative and quantitative analyses of climate impacts was thorough, principled, and well within the bounds of reasoned decision making. *Baltimore Gas & Electric Co. v. NRDC*, 462 U.S. 87, 103–104 (1983) (when examining an agency’s scientific determinations under the APA/NEPA, “a reviewing court must generally be at its most deferential” in determining whether the agency decision is “within the bounds of reasoned decisionmaking”).

B. TVA appropriately evaluated the Aero CT project’s cumulative impacts on climate change.

TVA appropriately considered the cumulative effects of GHG emissions from the proposed project on climate change. NEPA requires agencies to analyze “effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions” 40 C.F.R. § 1508.1(g)(3) (2022). TVA did that here, and Sierra Club’s claims that TVA failed “to consider the cumulative effects of the project in conjunction with TVA’s foreseeable gas buildout” fail. The EA identified past, present, and reasonably foreseeable future impacts that are in the vicinity of the proposed project, *see* AR Doc. 2 at 189–91 (Table 3-1), and evaluated GHG emissions from the project when added to those past, present, and reasonably foreseeable actions. TVA determined that GHG emissions from the proposed project, when added to the emissions from the other reasonably foreseeable future actions in the vicinity, would not result in notable increases on a regional, national, or global level. *Id.* at 204–05. Explaining that the Aero CT project is part of the implementation of the 2019 IRP Target Mix, the EA also drew upon and referenced the 2019 IRP EIS evaluation of system-wide GHG emissions. *See* AR Doc. 27 at 1094–97. In the IRP EIS, TVA estimated average TVA system-wide emissions under the Target Mix out to 2038. *Id.* at 1095. It determined that implementation of the

Target Mix would result in the continued, significant, long-term reductions in CO₂ emissions and overall reduction in annual GHG emissions and therefore would have “small but beneficial impacts on the potential for associated climate change.” *Id.* at 1098.

Because TVA took a “hard look” at the impacts of the Aero CT project, individually and cumulatively, on climate change, the EA fully complied with NEPA’s requirements.

II. TVA Considered a Reasonable Range of Alternatives.

TVA properly considered all reasonable alternatives that are technically and economically feasible for meeting the purpose and need of the proposed action in the EA. AR Doc. 2 at 177–78. This is all NEPA requires. 42 U.S.C. § 4332(C)(iii). Therefore, the Court should reject Sierra Club’s contention that TVA should have analyzed additional alternatives or that it defined the purpose and need of the proposed action too narrowly. As explained below, Sierra Club’s complaint rests entirely upon a misunderstanding of the agency decision at issue and ignores that the EA tiers from the 2019 IRP EIS.

A. TVA evaluated all reasonable alternatives for the proposed action.

TVA’s NEPA regulations require that an EA describe the proposed action and include only “brief discussions” of the purpose and need for the action, reasonable alternatives, and the no-action alternative. 18 C.F.R. § 1318.302(b); *see also* 40 C.F.R. § 1501.5(c)(2) (CEQ regulations similarly require that an EA “briefly discuss” the purpose and need and alternatives). As appropriate, EAs must also identify alternatives considered but not addressed in further detail and provide an appropriate explanation for why an alternative was eliminated. 18 C.F.R. § 1318.302(c); *see also Native Ecosystems Council v. U.S. Forest Serv.*, 428 F.3d 1233, 1246 (9th Cir. 2005). NEPA does not require agencies to consider a set number of alternatives or to select alternatives with the least environmental impact. *See Latin Ams. for Soc. & Econ. Dev. v. Admin’r of Fed. Highway Admin.*, 756 F.3d 447, 463 (6th Cir. 2014). Instead, agencies have “wide

discretion to choose the alternatives to evaluate in light of the project's purpose and environmental impacts," especially "when an agency decides to prepare only an environmental assessment." *Klein*, 753 F.3d at 582. In fact, courts have held that consideration of only the no-action alternative and the preferred alternative satisfies NEPA in many instances. *Id.* at 584 (holding that an EA's consideration in detail of only the no-action alternative and the preferred alternative satisfies NEPA); *Native Ecosystem Council*, 428 F.3d at 1245–46 (same); *see also N. Buckhead Civic Ass'n v. Skinner*, 903 F.2d 1533, 1541–43 (11th Cir. 1990) (finding EIS that studied in detail only two alternatives was sufficient); *Ctr. for Biological Diversity v. Animal and Plant Health Inspection Serv.*, No. 10-14175-CIV, 2011 WL 4737405, at *3–4 (S.D. Fla. Oct. 6, 2011) (upholding EA that evaluated two alternatives); *Sierra Club v. U.S. Forest Serv.*, 535 F.Supp.2d 1268, 1308–09 (N.D. Ga. 2008) (same pertaining to EIS); *see also* 40 C.F.R. § 1502.14(c) and (d).

Here, TVA considered a reasonable range of alternatives based upon the purpose and need of the project and properly tiered to the 2019 IRP. The 2019 IRP considered a variety of renewable technologies by including several carbon-free alternatives such as battery storage, demand response technologies, and solar expansion, which "play[ed] a substantial role in all futures." AR Doc. 26 at 753. TVA ultimately selected a Target Power Supply Mix as its preferred alternative, constituting a mix of supply- and demand-side resources that best positioned the Tennessee Valley for success in a variety of alternative futures while preserving the flexibility necessary to respond to uncertainty. AR Doc. 27 at 953–55.¹⁷ Specifically, the 2019 IRP adopted a system-wide strategy that included adding: up to 14,000 megawatts of solar by 2038; 2,400 megawatts of storage by 2028; up to 5,300 megawatts by 2038; 5,200 megawatts of CTs by 2028 and up to 8,600 megawatts

¹⁷ Uncertainties accounted for in the 2019 IRP include electricity demand, market power price, natural gas prices, coal prices, solar prices, storage prices, regulations, CO₂ regulations and price, distributed generation penetration, national energy efficiency adoption, electrification, and economic outlooks. AR Doc. 26 at 692.

by 2038; and 500 megawatts of demand response by 2038. AR Doc. 26 at 755–56. TVA determined that a single energy source option would not be sufficient to provide reliable and resilient power year-round and, in some cases, would not be economically feasible. For example, the 2019 IRP matched storage additions to solar additions in strategies where solar was promoted to explore the potential impacts of storage on overall portfolio results; however, using projections for utility scale battery storage costs and run-time restrictions, TVA determined the cost-value was not presently feasible. AR Doc. 26 at 746; *see generally id.* at 801–10. In light of these limitations, the 2019 IRP identified TVA’s gas fleet, including CTs, as playing a critical role in providing the flexibility needed to incorporate more renewable energy resources onto the grid while still maintaining system reliability. *Id.* at 671.

The Aero CT project EA explained that the purpose and need of the proposed action was to modernize TVA’s peaking fleet to assist in the integration of intermittent renewable sources and provide TVA with dependable year-round capacity, as set forth in the 2019 IRP and CT Study. AR Doc. 2 at 170–71. Sierra Club claims that the EA refused to consider a carbon-free alternative, but that is incorrect. The EA gave proper consideration to such alternatives. Because a carbon-free alternative would not provide reliable peaking capacity that underlies the purpose and need of the proposed action, TVA instead focused its analysis on the no-action and Aero CT alternative and considered—but did not carry forward for further analysis—carbon-free alternatives. AR Doc. 2 at 177 (“[T]he combination of renewable energy and storage cannot provide the same magnitude of reliable and cost-effective energy year-round as is possible with CTs in combination with renewables.”). This type of focused approach has been repeatedly upheld by the courts, and NEPA requires nothing more. *See, e.g., Tenn. Env’t Council v. TVA*, 32 F.Supp.3d 876, 889 (E.D. Tenn. 2014) (affirming TVA’s NEPA analysis of two alternatives for installing pollution controls at its Gallatin Plant, a no-action alternative, and several other alternatives that were briefly discussed

but eliminated from more detailed analysis); *Buck Mountain Cmty. Org. v. TVA*, 629 F.Supp.2d 785, 798 (M.D. Tenn. 2009) (affirming TVA’s analysis of a new transmission line because it considered a number of alternatives, briefly discussed each, and articulated why each was “not feasible based on considerations including cost, reliability, efficiency, timeliness, environmental risk, impact on residential and business areas, or failure to meet the supply needs identified by TVA”). Moreover, the exclusion of alternatives that do not meet the project’s purpose and need is wholly appropriate under NEPA. *See, e.g.*, 40 C.F.R § 1502.14(a); *Coal. for the Advancement of Reg’l Transp. v. Fed. Highway Admin.*, 576 F. App’x 477, 489–90 (6th Cir. 2014) (upholding agency decision to eliminate alternative that did not satisfy purpose and need statement).

The EA explained in detail that, at present, the combination of renewable energy and storage cannot provide the same magnitude of reliable and cost-effective energy year-round as is possible with CT units in combination with renewables. AR Doc. 2 at 177. Specifically, TVA recognized that solar alone could not satisfy winter peak demand, which typically occurs just before sunrise. *Id.* Solar requires dispatchable resources, such as peaking gas generation, to support the winter peak. *Id.* While short- and long-duration storage technologies may play a vital role in incorporating renewable energy resources in the future, as TVA explained in its 2019 IRP, battery storage is more expensive and limited in the duration of energy storage and therefore is not a cost-effective, feasible option at this time. *Id.*; *see generally* AR Doc. 26 at 811–25. Because TVA’s construction and operation of the Aero CTs at the Johnsonville Reservation seek to balance the pace of a clean energy transition with TVA’s obligation to provide low-cost, reliable, and resilient power, the EA considered but did not carry forward for further analysis battery storage and other carbon-free alternatives. Such alternatives did not meet the purpose and need for the proposed action and were therefore appropriately eliminated. AR Doc. 2 at 177.

TVA's decision to discuss carbon-free alternatives and decline to carry forward such alternatives for more detailed review in the EA was reasonable and deserves judicial deference. *City of Crossgate v. U.S. Dept. of Vet. Affairs*, 526 F.Supp.3d 239, 259 (W.D. Ky. 2021) (cleaned up) (“[I]t is not the Court’s role to examine the substantive basis on which the agency rested its decision to reject a potential alternative, rather it is enough that the record clearly indicates that the agency took the proposed alternative into account and gave plausible reason for rejecting it.”). Accordingly, TVA’s analysis of alternatives complied with NEPA.

III. TVA Reasonably Determined That an EIS Was Not Required.

To carry out its duties under NEPA, an agency may prepare an EA for a proposed action. 40 C.F.R. § 1501.5(a). An EA “[b]riefly provide[s] sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact.” *Id.* § 1501.5(c)(1); *see also Native Ecosystems Council v. Dombeck*, 304 F.3d 886, 895 (9th Cir. 2002). If the agency reasonably concludes that an action will not significantly impact the quality of the human environment, the EA satisfies the agency’s NEPA obligation, and an EIS is not required. *See* 40 C.F.R. §§ 1501.5(c), 1501.6(a). Here, TVA reasonably determined based on its review of the relevant foreseeable impacts of the Aero CT project that the project would not have significant impacts.

A. The impacts associated with the proposed action are not “cumulative significant impacts” affecting climate change.

As explained above, the EA showed that GHG emissions from the proposed project, when added to the emissions from the other reasonably foreseeable future actions in the vicinity, would not have a significant cumulative effect and would, in fact, contribute to a net decrease in system-wide GHG emissions. *Supra* at 9–13; AR Doc. 2 at 203–06. Furthermore, TVA determined that the proposed project would not otherwise have a significant cumulative effect on regional air

quality. AR Doc. 2 at 187–88, 191–94. TVA’s replacement of 16 larger, higher-emitting CTs with 10 smaller, lower-emitting Aero CTs would result in Johnsonville being no longer classified as a major source of HAPs following the project’s completion. (Doc. 29 at PageID##144–45, 153, 161, 163, 185–86.) Because TVA is retiring Units 1-16 at Johnsonville, any pollution from those Units will be eliminated. *Id.* at 189; *see also* AR Doc. 38. Further, because the coal-fired units at Johnsonville were decommissioned and ceased operations in 2017, nearly five years ago, emissions associated with this source are no longer active. AR Doc. 2 at 190. Therefore, the risks of cumulative impacts on air quality from the Aero CTs, retirement of Units 1-16, and decommissioned coal-fired units are relatively low. *Id.* at 198. Based on these facts, and because the proposed project would implement controls consistent with state permit requirements to limit, or cap, certain types of emissions, AR Doc. 2 at 198, TVA’s determination that the proposed project would not have a significant impact is reasonable.¹⁸

B. The impacts associated with the proposed action are not highly controversial.

Under previous NEPA regulations not in effect at the time of the EA’s issuance, a determination that a project would not have a significant impact required an agency to “look at both the ‘context’ of the action and its ‘intensity.’” *Friends of Fiery Gizzard v. Farmers Home Admin.*, 61 F.3d 501, 504 (6th Cir. 1995) (citing 40 C.F.R. §§ 1508.27(a), (b) (1978)); *see also Burkholder v. Wykle*, 268 F.Supp.2d 835, 848 (N.D. Ohio 2002) (explaining that an agency must take a “‘hard look’ at all the relevant foreseeable consequences of a proposed action, in light of

¹⁸ Sierra Club cites formaldehyde emissions as a potential threat to human health in its opposition brief to TVA’s pending Motion to Dismiss, citing Dr. Sahu’s declaration that is not part of the AR. (Doc. 32 at PageID#231.) However, the formaldehyde emissions number Dr. Sahu lifts from the PSD Permit Application is the maximum *potential* emissions. (Doc. 30 at PageID#697.) Dr. Sahu does not compare pre-project actual emissions to post-project expected emissions, nor does he account for the retirement of the existing emitting capacity. (*Id.*; Doc. 29 at Page ID#145–46.)

their context and intensity”) (citing *Metcalf v. Daley*, 214 F.3d 1135, 1141 (9th Cir. 2000)); see also 40 C.F.R. § 1501.3(b)(1), 1508.27 (1978).¹⁹ Context is determined by the location of the proposed action. 40 C.F.R. § 1501.3(b)(1). Intensity is assessed by considering possible impacts in ten areas that include public health or safety; the degree of controversy over the effects on the quality of the human environment; violations of Federal, State, or local law or requirements; and the degree to which the action may establish a precedent for future actions with significant effects. 40 C.F.R. § 1508.27(b) (1978); see also *Friends of Fiery Gizzard*, 61 F.3d at 504 (explaining that “intensity” means the severity of *adverse* impacts, not beneficial impacts). The presence of one factor is insufficient to indicate a significant environmental impact. See, e.g., *Spiller v. White*, 352 F.3d 235, 243 (5th Cir. 2003) (noting that the intensity factors are not “categorical rules that determine by themselves whether an impact is significant”); see also *Anderson v. Evans*, 371 F.3d 475, 493 (9th Cir. 2004) (precedential factor is “insufficient on its own to demonstrate a significant environmental impact” where an action is merely influential and not binding). Rather, the factors “are simply a list of relevant factors that should be considered in gauging whether an impact is “intense” and therefore, “significant.” *Spiller*, 352 F.3d at 243. “As such, all that [must] be shown is that all the factors were in some way *address* and *evaluated*.” *Id.* (emphasis added). “While the [] factors may show that the [agency] could have prepared an [EIS], they do not show that the [agency] acted arbitrarily or capriciously in not completing one.” *Klein*, 753 F.3d at 584.

¹⁹ 40 C.F.R. § 1508.27(b) (1978), which identifies factors of context and intensity to be considered in evaluating whether impacts are “significant,” was removed from CEQ regulations in 2020. 85 Fed. Reg. 43304, 43351 (July 16, 2020). Although CEQ recently proposed amendments to its NEPA regulations that would restore the factors of context and intensity, TVA was not required to consider the intensity factors at the time TVA prepared the Johnsonville Aero CT EA. TVA nonetheless incorporated longstanding agency practice and considered the intensity factors in the EA. 88 Fed. Reg. 49924, 49935 (July 31, 2023); AR Doc. 2 at 266.

Contrary to Sierra Club’s contention (Doc. 1 at PageID##28–29), the proposed project is not “highly controversial” so as to require an EIS. A federal action is controversial “where a substantial dispute exists as to the size, nature, or effect of the major federal action rather than to the existence of opposition to a use.” *Partners in Forestry Co-op., Northwood All., Inc. v. U.S. Forest Serv.*, 638 F. App’x 456, 463 (6th Cir. 2015) (cleaned up); *see also Coliseum Square Ass’n, Inc. v. Jackson*, 465 F.3d 215, 234 (5th Cir. 2006) (same); *Rucker v. Willis*, 484 F.2d 158, 162 (4th Cir. 1973) (same); *Tenn. Env’t Council*, 32 F.Supp.3d at 893 (same).

True controversy in the NEPA context involves commentary that “cast[s] ‘substantial doubt on the agency’s methodology and data.’” *Tenn. Env’t Council*, 32 F.Supp.3d at 893 (quoting *Hillsdale Env’t Loss Prevention, Inc. v. U.S. Army Corps of Eng’rs*, 702 F.3d 1156, 1181 (10th Cir. 2012)). Generally, “such evidence [] challenges the scope of the scientific analysis, the methodology used, or the data presented by the agency.” *Angles of the Au Sable v. U.S. Forest Serv.*, 565 F.Supp.2d 812, 828 (E.D. Mich. 2008). Mere public opposition to a proposed action does not render the action controversial under NEPA, even if the opposition is vigorous, because that “would surrender the determination to opponents of a federal action, no matter whether major or not, nor how insignificant its environmental effect might be.” *Partners in Forestry*, 638 F. App’x at 463; *Nw. Env’t Def. Ctr. v. Bonneville Power Admin.*, 117 F.3d 1520, 1536 (9th Cir. 1997) (“Controversy does not refer to the existence of opposition to a use.”).

Here, Sierra Club does not specify how the proposed project’s impacts are scientifically controversial. Instead, it states broadly that, because burning fossil fuels worsens climate change and threatens local air quality, the proposed action is highly controversial. While climate change may elicit strong reactions, it is not “highly controversial” for purposes of NEPA. *See, e.g., WildEarth Guardians v. Bernhardt*, 501 F.Supp.3d 1192, 1218 (D. N.M. 2020) (recognizing that, while climate change is a highly controversial subject, “nothing in NEPA or its accompanying

regulations mandates certain studies to account for this global problem. . . . When Congress requires that specific climate change-based studies to be performed, the Court will uphold them. That time has not yet arrived.”).

Moreover, Sierra Club’s arguments ignore a key component of the proposed action—its limited scope. TVA is not, as Sierra Club would like to suggest, constructing and building a *new* generation site. Rather, TVA is proposing to construct and build 10 natural gas-fired Aero CT units at its *existing* Johnsonville Reservation where existing CT Units 1-16 are being retired. Because the project would occur at an existing TVA generation site on previously disturbed industrialized land, TVA analyzed the potential environmental impacts associated with this project and reasonably determined that the proposed project would not cause significant impacts. AR Doc. 3 at 474.

C. The EA does not establish a precedent for future agency actions.

The Aero CT project would not “establish a precedent for future actions” such that TVA would feel bound to the conclusions reached in this EA to guide its decisions regarding the construction of future generation assets. (Doc. 1 at PageID#29.) An action is “precedential” only if it creates “irreversible pressure” to approve a future project or is regarded as binding by the agency. *See Nat’l Parks Conserv. Ass’n v. U.S. Forest Serv.*, 177 F.Supp.3d 1, 32 (D.D.C. 2016). An agency action that is unique and independent from future actions cannot be considered a precedential action. *Native Vill. of Chickaloon v. Nat’l Marine Fisheries Serv.*, 947 F.Supp.2d 1031, 1072 (N.D. Ala. 2013). This requirement seeks to “avoid the thoughtless setting in motion of a ‘chain of bureaucratic commitment that will become progressively harder to undo the longer it continues.’” *Anglers of the Au Sable*, 565 F.Supp.2d at 832. But there is no risk of that here. TVA pursues its asset strategy using least-cost planning and must consider a multitude of factors before deciding on any specific generation types, *see* AR Doc. 2 at 169–71; therefore, TVA would

not rely on the EA to justify future proposed CT units. Indeed, each proposed project would be subject to its own independent analysis. Moreover, Sierra Club offers no evidence that the construction and operation of the Aero CTs at the Johnsonville Reservation will commit TVA to similar future actions, and nothing in the EA supports this speculation. Because TVA reasonably determined that the proposed action would not result in significant impacts, TVA was not required to prepare an EIS.

IV. The EA Appropriately Accounted for Recent Executive Orders.

Contrary to Sierra Club's claims, the Aero CT project EA and FONSI do not threaten a violation of federal requirements imposed for the protection of the environment. (*See* Doc. 1 at PageID#29.) Sierra Club's assertion that TVA failed to comply with federal climate policy relies on a misunderstanding of federal Executive Orders ("EOs") pertaining to the Administration's climate goals. *See id.* (citing EOs 13990, 14008, and 14057). Consistent with NEPA's requirements, the EA took a hard look at the project's impacts, including climate change and environmental justice impacts. AR Doc. 2 at 198–208, 258–63. NEPA does not require TVA to select an alternative that aligns most with the Administration's policies as outlined in these EOs.

Sierra Club is wrong that the EOs cited in their complaint create legally binding obligations on TVA. As an initial matter, the three EOs Sierra Club identifies lack the specific statutory foundation to have the effect of a congressional statute enforceable by this Court. *City of Albuquerque v. United States Dep't of Interior*, 379 F.3d 901, 913 (10th Cir. 2004); *Chen Zhou Chai v. Carroll*, 48 F.3d 1331, 1338 (4th Cir. 1995) ("An [EO] is privately enforceable only if it is issued pursuant to a statutory mandate or delegation of congressional authority."). A plain reading of the three cited EOs shows they are not grounded in a specific statutory foundation because they do not contain any specific statutory authorization of the goals and policies outlined within them; presumably, these EOs rely on the President's general constitutional powers and

fiscal authority that Congress vested through various statutes. *See* Exec. Order No. 13,990, 86 Fed. Reg. 7037 (Jan. 20, 2021) (“By the authority vested in me as President by the Constitution and the laws of the United States of America”); Exec. Order No. 14008, 86 Fed. Reg. 7619 (Jan. 27, 2021) (same); Exec. Order No. 14057, 86 Fed. Reg. 70935 (Dec. 8, 2021) (same); *see also, e.g., Louisiana v. Biden*, 585 F.Supp.3d. 840, 863 (W.D. La. 2022) (“[President Biden and his agency directors] argue that Article II of the United States Constitution supplied [him with] the authority to issue EO 13990.”), *vacated*, 64 F.4th 674 (5th Cir. 2023). Accordingly, EOs 13990, 14008, and 14057 lack the requisite statutory foundation to have the force and effect of the law necessary to be judicially enforceable.

Nevertheless, the EA appropriately accounted for the policy goals articulated in the EOs. The EA and FONSI analyzed potential impacts from the project on climate change, air quality, and other resources. To the extent practicable, considering TVA’s statutory obligations to provide adequate and reliable service at the lowest system cost, 16 U.S.C. § 831m-1(b)(1), and to sell power “at rates as low as are feasible”, 16 U.S.C. § 831n-4, the proposed action “support[s] an overall increase in the delivery of clean/renewable energy generation which contributes to an overall decrease in regional and national GHG emissions.” AR Doc. 2 at 291. Furthermore, consistent with EO 13990, the EA includes an SCC analysis with the values specified by both the current and the prior administrations. AR Doc. 2 at 204–08. As such, it is evident TVA “is committed to supporting the Administration’s decarbonization goals” to the extent consistent with TVA’s statutory obligation to provide adequate, reliable, and dispatchable electric power. *See* AR Doc. 2 at 291; *see also* 16 U.S.C. 831m-1(b). Accordingly, TVA took the requisite “hard look” under NEPA and appropriately addressed the goals articulated in the EOs in its analysis.

V. Remedy

Because TVA complied with NEPA, Sierra Club is not entitled to any relief whatsoever. But, in the unlikely event that the Court finds otherwise, TVA respectfully requests that the parties be given the opportunity to provide the Court briefing on the appropriate remedy in this case. *Accord, e.g., Pub. Emps. for Env't Responsibility v. United States Fish & Wildlife Serv.*, 177 F.Supp.3d 146, 157–58 (D.D.C. 2016) (allowing parties the opportunity to present briefs on the appropriate remedy, including “whether vacatur is proper,” where the topic was not addressed in summary-judgment briefing); *cf. Monsanto Co.*, 561 U.S. at 157–58 (observing that there is “[n]o . . . thumb on the scales” in favor of granting an injunction in NEPA cases and that, instead, “a court must determine that an injunction should issue under the traditional four-factor test”). TVA asserts that the only appropriate remedy would be a remand to the agency without vacatur or injunctive relief. *See, e.g., Cissell Mfg. Co. v. U.S. Dep't of Lab.*, 101 F.3d 1132, 1136 (6th Cir. 1996) (“It is well settled that when an agency makes an error of law in its administrative proceedings, a reviewing court should remand the case to the agency so that the agency may take further action consistent with the correct legal standards.”); *PPG Indus., Inc. v. United States*, 52 F.3d 363, 365 (D.C. Cir. 1995) (same); *Metro. Hosp., Inc. v. U.S. Dep't. of Health & Hum. Servs.*, No. 1:09-CV-128, 2010 WL 11537808, at *2 (W.D. Mich. Nov. 4, 2010) (“It is well settled that the function of the reviewing court ends when an error of law is laid bare. And, once the function of that reviewing court ends, remand is the proper remedy.” (internal quotation marks and citations omitted)).

CONCLUSION

For the foregoing reasons, TVA respectfully requests that the Court grant TVA’s cross-motion for summary judgment and deny Sierra Club’s cross-motion.

Respectfully submitted,

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